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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,473	09/10/2003	Masao Ozeki	242619US0	2219
22850	7590	09/22/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				SCHECHTER, ANDREW M
ART UNIT		PAPER NUMBER		
		2871		

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/658,473	OZEKI ET AL.	
	Examiner Andrew Schechter	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 July 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-6 and 8-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-6 and 8-16 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 January 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/30/05.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: Foreign patent document.

## DETAILED ACTION

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 8, and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakawa et al.*, U.S. Patent No. 5,892,598 in view of *Date et al.*, U.S. Patent No. 6,618,104, in view of *Nishiyama et al.*, U.S. Patent No. 6,507,385, and further in view of *Niiyama et al.*, WO 2000/23539.

[The examiner notes that U.S. Patent No. 6,723,393 to *Niyama* belongs to the same patent family as *Niiyama* '539, so the examiner cites it as a rough translation of *Niiyama* '539.]

*Asakawa* discloses [see Figs. 8, 27, and 28, for instance] a composite display device comprising a first display member [whatever object is on the left in the figures], a second display member [52] disposed between the first display member and an observation point [the eye on the right] wherein the second display member comprises

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an electro-optical element [polymer dispersed liquid crystal device] which transmits light and scatters light.

Asakawa does not appear to explicitly state that light is transmitted under the application of no voltage and scattered under the application of a voltage [sometimes called “reverse mode”, as opposed to the “normal mode” when a voltage causes transmission]. *Date* discloses an analogous polymer-dispersed liquid crystal device and teaches using the reverse mode [col. 14, line 24 – col. 15, line 20]. It would have been obvious to one of ordinary skill in the art at the time of the invention to use this mode, motivated by the teaching of *Date* that this is preferable to improve viewing angle and obtain strong scattering properties.

The combined device of Asakawa in view of *Date* does not explicitly have the feature that the light transmittance under application of no voltage is at least 80%. [Asakawa itself gives multiple examples for which this is the case, col. 20, lines 48 and 56, for instance, but it is not necessarily true of the combined device.] It would have been obvious to one of ordinary skill in the art at the time of the invention to have the light transmittance under application of no voltage be at least 80%, motivated by the desire to clearly observe the first display member through a highly transparent second display member; higher transparency improves the quality of the display device. [An alternative way of stating this is that the transmittance of the display is a result-effective variable whose optimization (making it as large as possible subject to other constraints) would have been obvious to one of ordinary skill in the art at the time of the invention;

see MPEP 2144.05. Making it within the range above 80% would therefore have been obvious to one of ordinary skill in the art at the time of the invention.]

Asakawa in view of *Date* discloses a PDLC composite device, with liquid crystal and cured product of a curable compound soluble to the liquid crystal, but does not explicitly disclose the detailed structure recited, such as transparent electrodes and adhesive spacers. *Nishiyama* discloses [see Fig. 1, for instance] an analogous PDLC device having a pair of substrates [1, 2] with transparent electrodes [5, 6], a composite layer [4] between them, the composite layer comprises a liquid crystal cured/resin composite containing liquid crystal and a cured product of a curable compound soluble to the liquid crystal, and adhesive spacers [3] arranged in the composite layer. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such electrodes and spacers, motivated by the desire to apply an electric field while allowing light to pass through, and keep the substrates apart at the desired spacing.

Asakawa in view of *Date* in view of *Nishiyama* does not necessarily disclose the remaining limitation of claim 1, that the curable compound comprises a compound selected from the group of compounds in Formula (1) and Formula (2). *Niiyama* discloses the use of such a curable compound [see Fig. 1, whose compound is the same as that in the present application's Fig. 3(d)] in an analogous liquid crystal/cured resin composite. It would have been obvious to one of ordinary skill in the art at the time of the invention to use this compound, motivated by *Niiyama*'s teaching that doing so enables the optical element to have high reliability and high contrast, produced easily

and with a short curing time [see *Niyama* '393, col. 3, lines 33-50]. Claim 1 is therefore unpatentable.

Asakawa discloses light sources [123] provided to illuminate the electro-optical element, and the light sources emit at least two light source colors [see Fig. 28], wherein the light sources emit the light source colors sequentially [col. 16, lines 25-26], the frequency of each colored light from the light sources is at least 40Hz [col. 16, line 35], and at least a portion of the display region of the electro-optical element is rendered to be a light scattering state in association with illumination by one or a plurality of light source colors to the electro-optical element to thereby provide a display color comprising one or a plurality of light source colors [col. 16, lines 31-44]. Claim 12 is therefore unpatentable as well. The light sources are able to emit a color of red, blue, or green independently [see Fig. 28], so claim 13 is also unpatentable. The display color comprises at least 8 colors [col. 16, lines 38-39; a time-sequential full color display of this kind using the three primary colors red, green, and blue can generally produce any desired color in the rainbow], so claim 14 is also unpatentable. A field sequential driving method wherein a change of light source colors of the light sources is associated with a display state of the electro-optical element is used, so claim 15 is also unpatentable.

Asakawa does not disclose details of the non-pixel region (peripheral portion) of the display. It would have been obvious to one of ordinary skill in the art at the time of the invention to have made a portion of the electro-optical element excluding the connection portion to an external circuit transparent, motivated by the desire not to

cover up unnecessarily the image from the first display member (to avoid blocking the external light in Fig. 8). Claim 8 is therefore unpatentable.

*Nishiyama* discloses using adhesive spacers arranged in the composite layer which would have been obvious to one of ordinary skill in the art at the time of the invention to use, as discussed above, so claim 11 is also unpatentable.

4. Claims 3, 4, 9, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakawa*, *Date*, *Nishiyama*, and *Niiyama* as applied above, and further in view of *Kobayashi et al.*, U.S. Patent No. 6,261,650.

*Asakawa* in view of *Date* does not disclose using the composite display device for at least displaying a speed of an automobile. *Kobayashi* does disclose using an analogous LCD device for displaying the speed of an automobile [see Figs. 15-17]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so with the device of *Asakawa* in view of *Date*, motivated by the desire to provide a more information in a convenient manner on an automobile dashboard [as taught by *Kobayashi*]. Claim 16 is therefore unpatentable.

The first display member in this case is a gauge [the speedometer, tachometer, fuel gauge, etc. shown in *Kobayashi*], and this gauge is a physical body, so claims 3 and 4 are also unpatentable. *Asakawa* in view of *Date* discloses an illumination means [as above], and the driving voltage in the car is supplied by a battery [either the car battery or a separate battery, there being no other way of supplying the voltage], so claim 9 is also unpatentable.

*Kobayashi* also discloses disposing an anti-reflection film on the surface of the electro-optical element [col. 20, lines 21-23]. It would have been obvious to one of ordinary skill in the art at the time of the invention to do so in the above device, motivated by the desire to reduce reflections and improve the display quality. Claim 10 is therefore unpatentable as well.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakawa, Date, Nishiyama, and Niiyama* as applied above, and further in view of *Hirai et al.*, U.S. Patent No. 5,103,327.

*Asakawa* in view of *Date* does not explicitly disclose the haze value in a light scattering state being at least 80%. *Hirai* does disclose an analogous PDLC device with high light transmission in the light transmitting state and haze greater than 80% in the scattering state [col. 6, lines 37-41]. It would have been obvious to one of ordinary skill in the art at the time of the invention to have such a haze value in the device of *Asakawa* in view of *Date*, motivated by the increased light scattered to the viewer's eye when the haze is high, which results in a more visible display. Claim 2 is therefore unpatentable.

6. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Asakawa, Date, Nishiyama, and Niiyama* as applied above, and further in view of *Sullivan*, U.S. Patent No. 6,100,862.

*Asakawa* in view of *Date* does not disclose a plurality of second display members. *Sullivan* discloses an analogous display device in which a plurality of second members [see Fig. 1] are arranged. It would have been obvious to one of ordinary skill

in the art at the time of the invention to do so in the above device, motivated by the desire to produce a 3D image. Claim 5 is therefore unpatentable.

The plurality of second display members can display the same display pattern, with one on while the other is off [col. 3, lines 3-21], so claim 6 is also unpatentable.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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19 September 2005